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ABSTRACT

This study explored effects of early out-of-home care on college students' social and emotional development, academic achievement, and choice of profession. The sample included 736 white and 163 black college undergraduates in Missouri who were asked whether they had received part- or full-time care from a baby-sitter, teacher, or family day care provider during infancy, at age 2, and at age 4. Other information obtained included demographic data, high school and college grade point averages, number of extracurricular activities, major area of study, and preferences for employment after graduation. Participants were administered the Erikson Psychosocial Inventory Scale, a measure assessing respondents' resolution of conflicts associated with the first six of Erikson's psychological stages. Seven predominant patterns of child care emerged from the data. Among them, parent-only care in infancy stood out as the early child care arrangement most associated with high functioning among college students, especially men; it was followed by full-time day care at ages 2 and 4. Part-time care in infancy and at age 2, with full-time care at age 4, was the arrangement most associated with low scores. This was true for both races and for both sexes. Additional findings are discussed. (RH)

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Long-Term Effects of Day Care[1]

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This research explored the effects of early out-of-home care on college students' social and emotional development, academic achievement, and choice of profession. Previous research has given some evidence for short-term effects of day care on children's relationships with adults, peer-orientation, and self-discipline. It seems of obvious importance to determine whether or not development is affected in the long run by early day care, and if so, how.

The sample included 899 college undergraduates (17 - 22 years of age) recruited in general education classes and dormitories in seven Missouri state universities; 736 were white and 163 were black. Sixty percent of the white students and 64 percent of the Black students were female. Students were asked to indicate whether they had received part- or full-time care by a babysitter, teacher, or family day care provider during infancy, at age 2, and at age 4. Seven predominant patterns of child care emerged. The number of Black and white, male and female students who experienced each of these patterns is shown in the table on the next page.

To verify the accuracy of students' reports of their day care experiences, 38 were asked to address an envelope to their parents so the researchers could send them a questionnaire asking about the child care arrangements the parents had made for them at each of the three ages in question. Thirty-four parents responded, 84% were in agreement with their child's reports.

Other information requested from students included demographic data, high school and college grade point averages, number of extracurricular activities, major area of study, and the type of job they hoped to have after graduating from college. They were also administered the Erikson Psychosocial Inventory Scale (Rosenthal, Gurney, & Moore, 1981).

The Erikson Psychosocial Inventory Scale (EPSI) was developed to measure respondents' resolution of the conflicts associated with the first six psychological stages outlined by Erikson. The inventory consists of 72 items. The six subscales, each with 12 items, are labeled Trust, Autonomy, Initiative, Industry, Identity, and Intimacy. A Sex X Race X Child Care

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Arrangement (2 X 2 X 7) analysis of variance on ranks was performed on each of the six subscales.

Students' high school GPA's were divided into two categories: those at or above 2.5 and those below (on a 4-point scale). Major area of study and intended job were categorized as "people-oriented," "thing-oriented," or "other." (There is some indication in the literature that day care children may be more sociable than other children. It was therefore predicted that students who had been in day care would be more likely to choose "people oriented" fields than other students.) Extracurricular activities were categorized by number (none, 1-4, or 5 or more). X^2 tests were run to determine the relationship between these variables and the child care arrangement categories.

Table 1: Number of Subjects in The Seven Child Care Arrangement Categories

Out-of-Home Care Arrangements			Race and Sex				
Infancy	Age 2	Age 4	White		Black		
			Female	Male	Female	Male	Totals
1. none	none	none	250	167	39	20	476
2. none	none	part- or full-time[a]	84	42	18	5	149
3. none	part-time	part-time	29	27	9	2	67
4. none	full-time	full-time	20	12	7	2	41
5. part-time	part-time	part- or full-time	27	23	21	17	88
6. part-time	full-time	full-time	6	7	5	5	23
7. full-time	full-time	full-time	25	17	6	7	55
		TOTALS	441	295	105	58	899

Note: Child care arrangement categories are ordered from least to most day care in infancy and early childhood.

*Part-time day care = 20 hours per week or less; full-time day care = more than 20 hours per week.

Findings

Before summarizing the main results, some confounding of demographic variables with day care arrangement patterns should be described. X^2 tests showed independence of child care arrangement patterns with sex, but not with sibling order, race, or SES. The analysis with sex showed only that students who had had no day care experience were less likely to be first-born (25%) than students who began part-time day care at either age 2 or age 4 (39% in both cases). The confounding of race with child care arrangement was apparent in that one category, part-time care in infancy and at age 2 and part- or full-time care at age 4, had a higher proportion of Blacks than any other category except part-time care in infancy and full-time care at ages 2 and 4 (each were 43% Black). There was less confounding of child care arrangements with socioeconomic status, but here too the category part-time care in infancy and at age 2 and part- or full-time care at age 4 had a higher proportion of lower SES families (14%) than the category of no day care experience (3%) or no day care in infancy or at age 2 and part- or full-time care at age 4 (4%). Race and SES, in turn, were also significantly related, with Blacks being more likely to report lower incomes than whites. Because confounding seemed to be more serious with race than with SES, a decision was made to enter race as an independent variable in all analyses.

Given the exploratory nature of this research, and the fact that we have no information about the quality of the child care experienced by our subjects, any conclusions about the long-term effects of early child care arrangements clearly must be tentative. There were, however, some consistent patterns in the findings, and these merit further investigation. These patterns are described below. The results are organized by child care arrangement categories, and in order of those categories showing positive associations, negative associations, and finally few associations with later development.

Parent-only care in infancy followed by full-time day care at ages 2 and 4 (category 4) stood out as the early child care arrangement pattern most associated with high functioning among college students, especially for men. Relative to other day care arrangement patterns, this pattern was associated with high identity self-ratings by Black males and high intimacy self-ratings by both white and Black males. In fact, for white males, it was the only child care arrangement not associated with lower intimacy self-ratings relative to white females. For both Blacks and whites (with the two sexes combined), it was associated with higher than average proportions of high school grade point averages of 2.5 and above and a higher proportion of students listing involvement in five or more extracurricular activities.

Parent-only care in infancy followed by part-time care at ages 2 and 4 (category 3) was interesting in that it also was associated with higher scores than some of the other early child care patterns, but only for Blacks and women. Specifically, relative to the other child care arrangement patterns, this arrangement pattern was associated with high identity scores for Black women, high industry scores for Blacks (the sexes combined), and high intimacy scores for women (the races combined).

Part-time care in infancy and at age 2 followed by part- or full-time care at age 4, (category 5) on the other hand, seemed more than the other day care arrangement patterns to be associated with particularly low scores: low industry self-ratings and low high school GPA's by whites and Blacks and women, low identity self-ratings among Black men, and low intimacy self-ratings by men. Women's intimacy self-ratings were the only high scores for this child care arrangement pattern.

No day care experience in infancy or early childhood (category 1) was associated with low intimacy self-ratings for Blacks and for females; however, white females in this category scored particularly high in self-ratings of identity.

Black students who had been in **full-time day care throughout infancy and early childhood** (category 7) tended to have low intimacy self-ratings and a high proportion of high school GPA's less than 2.5. Women (both races combined) in this category also tended to have relatively low self-ratings of intimacy.

The hypothesis that students who had been in day care would be more likely to choose "people oriented" fields than other students received some support in that significantly fewer students who had never been in day care aspired to "people-oriented" occupations (58%) than students who had been in full-time care at all three ages (78%).

Measures showing no relationships with child care arrangement categories were EPSI ratings on the Trust, Autonomy, and Initiative subscales, college grade point average, and college major.

Table 2 on the next page shows the number and percentage of students in each of the child care arrangement patterns having high school grade point averages of 2.5 and above. Table 3 summarizes the results related to all of the measures, including the Erikson Psychosocial Inventory Scale.

Table 2: Students in Each of the Child Care Arrangement Categories with High School Grade Point Averages of 2.5 and above.

Out-of-Home Care Arrangements			Race					
Infancy	Age 2	Age 4	White		Black		Total	
			No.	%*	No.	%	No.	%
none	none	none	277	68^{a}	11	21^{b}	291	63^{cD}
none	none	part- or full-time	91	75	8	38	99	69^{D}
none	part-time	part-time	34	63^{a}	5	45	39	60^{cD}
none	full-time	full-time	27	87^{A}	5	83^{B}	33	85^{CD}
part-time	part-time	part- or full-time	27	55^{a}	6	17^{b}	33	39^{cd}
part-time	full-time	full-time	9	75	4	44	13	62
full-time	full-time	full-time	31	74	1	8^{b}	32	58^{cD}
		TOTALS	496	69	40	27	540	62

Note: Child care arrangement categories with capitalized superscripts had a significantly higher proportion of students with high school GPA's $\geq$ 2.5 than categories with same-letter lower-case superscripts. Categories with same-letter capitalized superscripts were not significantly different from one another; the same holds for categories with same-letter lower-case superscripts.

*These figures refer to the percentage of students of the indicated race and child care arrangement history with high school grade point averages of 2.5 and above (on a 4-point scale).

Table 3: Summary of Child Care Arrangement Categories with High and Low EPSI Industry (Ind), Identity (Ide), and Intimacy (Int) Ratings, High School Grade Point Averages (GPA), and Extracurricular Activities (Ext).

Out-of-Home Care Arrangements			Race and Sex							
Infancy	Age 2	Age 4	White			Black			Total	
			Female	Male	Total White	Female	Male	Total Black	Female	Male
none	none	none	IDE					int	int	
none	none	part/ full-time								
none	part-time	part-time				IDE		IND	INT	
none	full-time	full-time	INT	GPA EXT		IDE INT	GPA EXT			INT
part-time	part-time	part/ full time		ind gpa		ide	gpa ind	gpa INT		int
part-time	full-time	full-time		int					int	
full-time	full-time	full-time						int gpa	int	

Note: Capitalized abbreviations denote that among students in the indicated child care category, sex, and/or race, ratings on this variable were relatively high. Lower-case abbreviations denote that ratings were relatively low.

Discussion

Perhaps the most important conclusion to come out of this research is that there were few consistent relationships between early out-of-home care and college students' present functioning. College grade point averages, choice of academic major, and EPSI Trust, Autonomy, and Initiative ratings showed no relationships with the child care arrangements students had experienced. Moreover, some of the significant relationships that did emerge did not show consistent patterns.

One might reason that if any goals of socioemotional development are affected by early childhood care arrangements, they should be those theoretically at issue during the first five years of life. It is therefore interesting that the EPSI subscales measuring the development of psychological functioning related to the first three of Erikson's stages (trust, autonomy, and initiative), showed no relationship with students' own early childhood care history. Relationships were instead found between child care arrangement patterns and the subscales measuring developmental issues of middle childhood and adolescence: industry, identity, and intimacy. According to Erikson's theory, the quality of the resolution of these issues is built upon the quality of the resolution of the issues of the earlier stages. In a factor analysis of the EPSI, Gray, Ispa, & Thornburg (1986) did not find separate trust and autonomy factors; instead items from those subscales were dispersed across the other factors. This supports the notion that for late adolescents and young adults, dimensions of the early stages of development are incorporated in the later stages.

Examining the significant findings that did emerge, some interesting patterns are apparent. It seems that students who as infants were cared for by their parents only and as 2- and 4-year-olds were either in part-time outside care or in full-time day care (Categories 3 and 4) had more than their share of high ratings. No day care in infancy and part-time care at ages 2 and 4 was associated with high scores for women and for Blacks; no day care in infancy and full-time day care at ages 2 and 4 was associated with high scores for both races and for men. These data may suggest some benefits of care by parents only during infancy followed by part- or full-time outside care by age 2.

Students whose early child care history, on the other hand, included part-time care in infancy and at age 2 and full-time care at age 4 (Category 5) seemed to stand out as having more than their share of low scores. This was true for both races and for both sexes. Why this was the case is not clear. Looking at Table 3, one sees that lower ratings on several measures were characteristic of students who received substitute care as infants; we have not been able to explain why Category 5 was associated more than the others (Categories 6 and 7) with low scores.

Finally, it was intriguing to find similarly low intimacy scores for Blacks and females who experienced no day care at all (Category 1) and Blacks and females who experienced full-time day care throughout infancy and early childhood (Category 7). Items in the intimacy subscale focused on openness to others. Attachment theorists might predict our finding for the full-time day care group, but not for the no day care group. Could it be that parent-only care in early childhood is too sheltering, while full-time day care is not sufficiently nurturing?

This research presents many avenues for further work; it also requires great caution in interpretation. The data do not describe causal connections between child care arrangements and the psychological functioning of college students. Any number of reasons for the links we found between child care history and later development are possible. This qualification is particularly important since we obviously could not gather information on the quality of the day care experienced. Carefully controlled longitudinal studies following children who have experienced a variety of types and quality of child care arrangements is clearly needed.

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